

FIGURE 1A

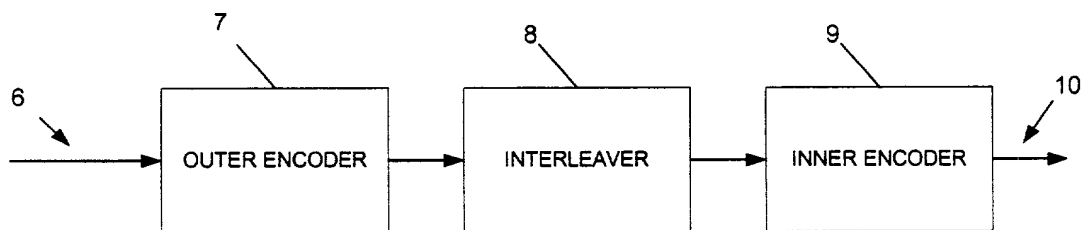


FIGURE 1B

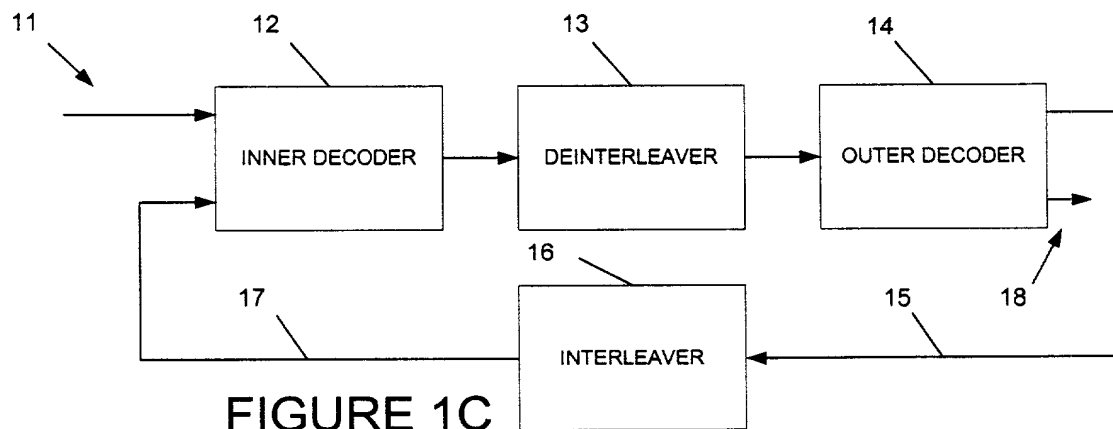


FIGURE 1C

RATE N/N SYSTEMATIC, RECURSIVE CONVOLUTIONAL ENCODER  
AND CORRESPONDING DECODER

Inventors: Donald B. Eidson, et al.  
Howrey Dkt. No. 01827.0037.CPUS01  
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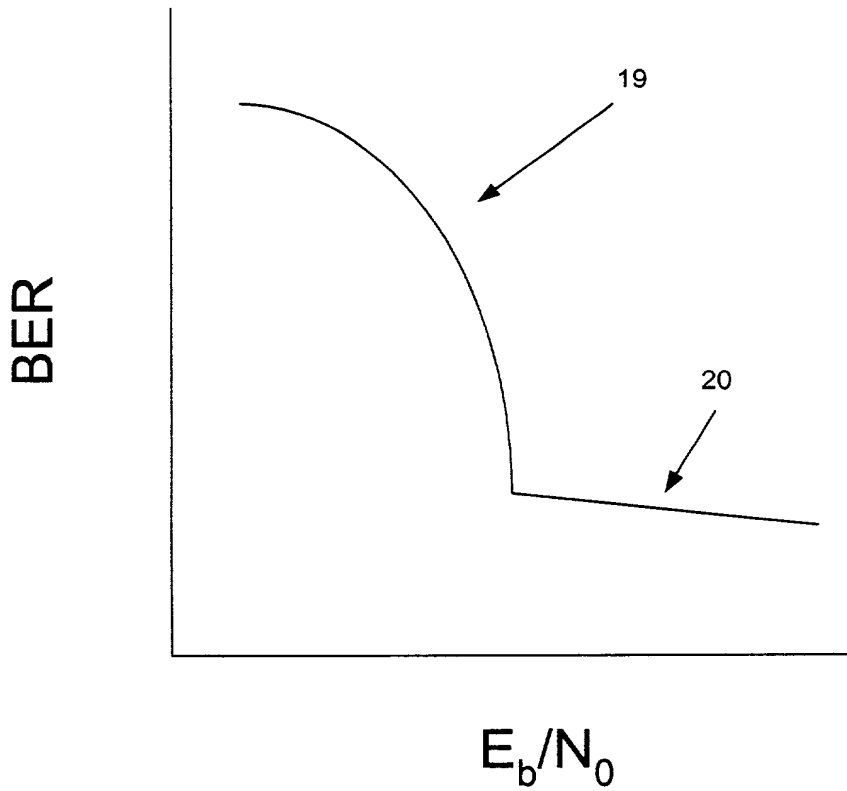


FIGURE 2

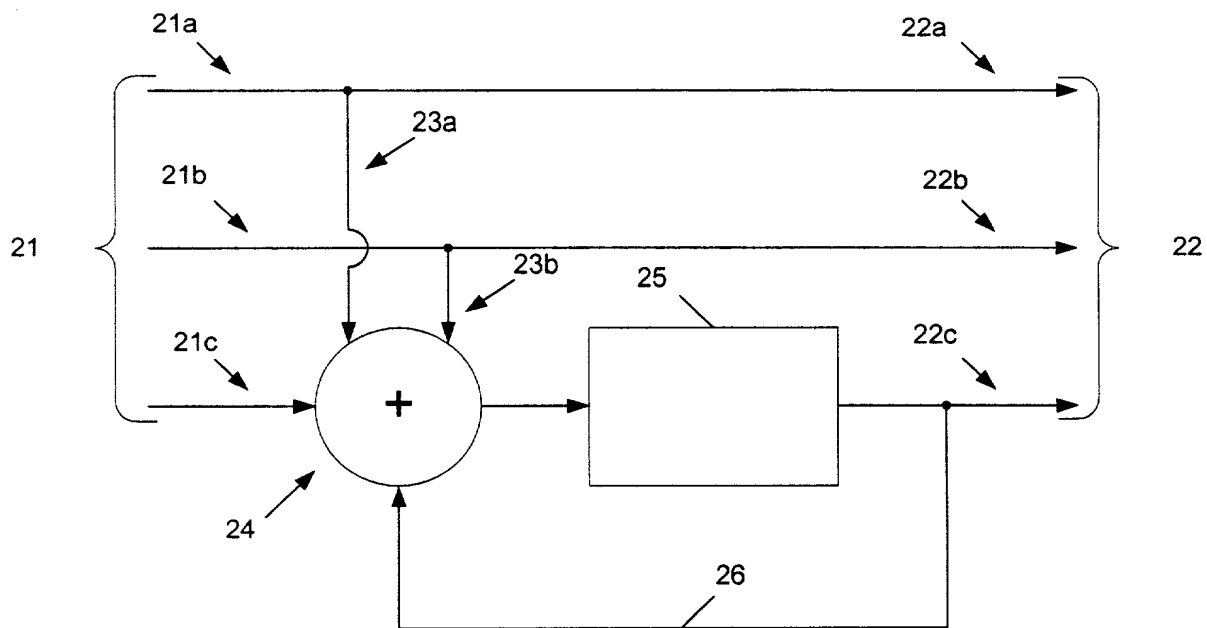


FIGURE 3A

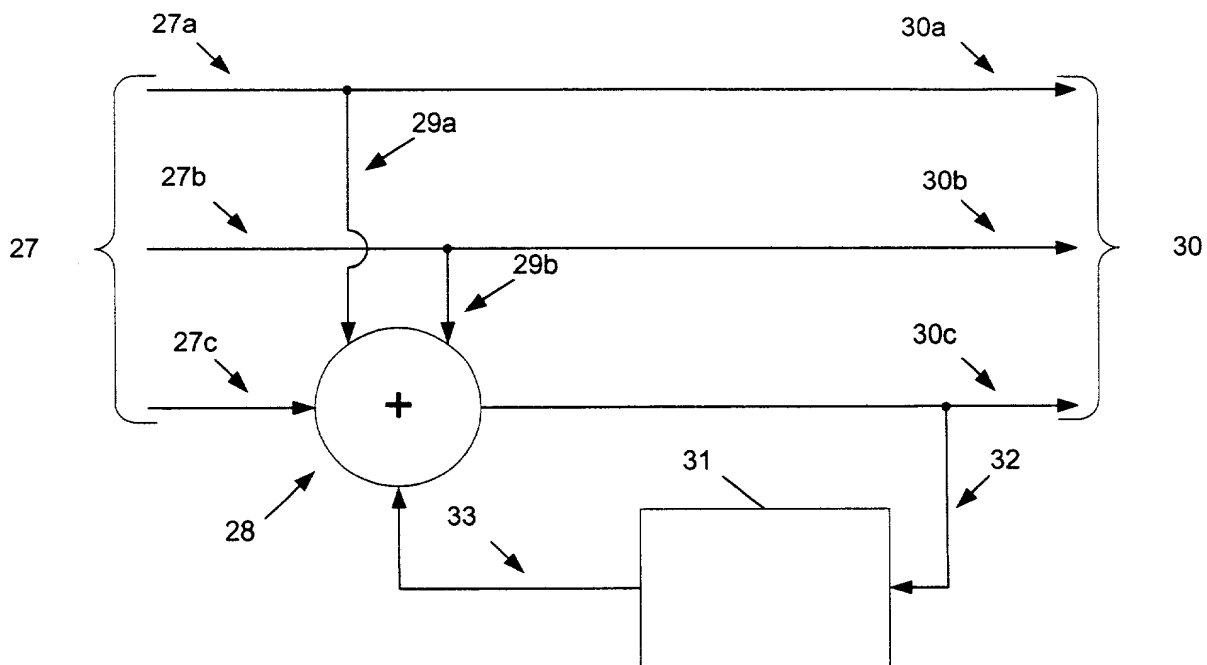


FIGURE 3B

RATE N/N SYSTEMATIC, RECURSIVE CONVOLUTIONAL ENCODER  
AND CORRESPONDING DECODER

Inventors: Donald B. Eidson, et al.  
Howrey Dkt. No. 01827.0037.CPUS01

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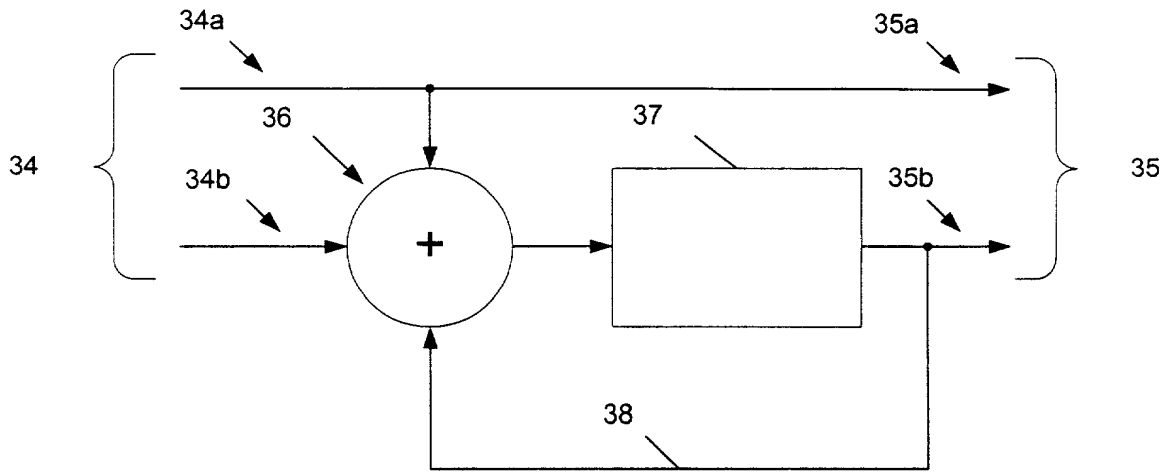


FIGURE 4

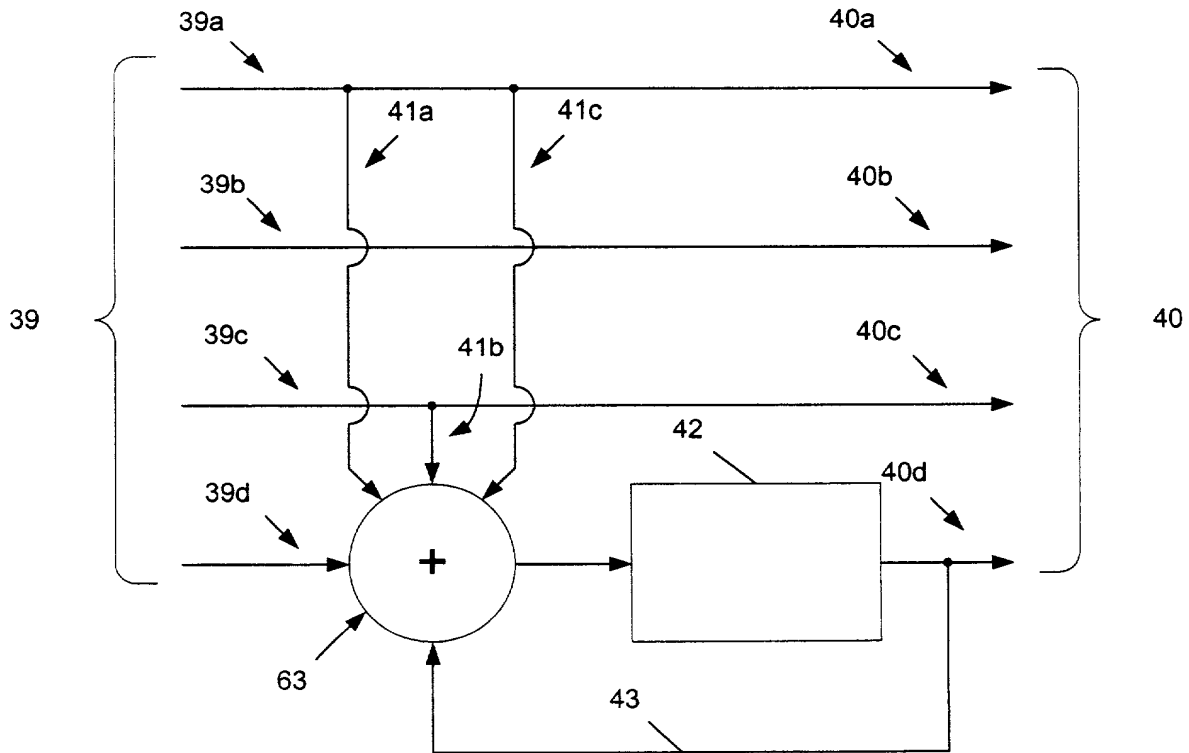


FIGURE 5

RATE N/N SYSTEMATIC, RECURSIVE CONVOLUTIONAL ENCODER  
AND CORRESPONDING DECODER

Inventors: Donald B. Eidson, et al.  
Howrey Dkt. No. 01827.0037.CPUS01  
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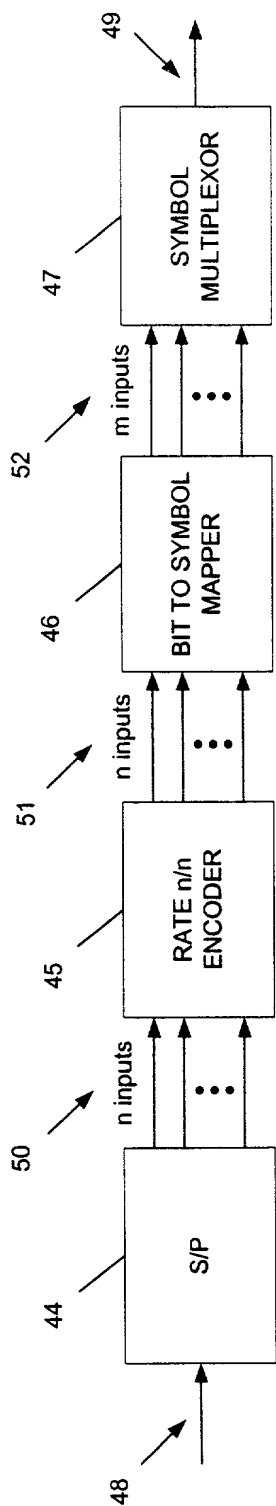


FIGURE 6

RATE N/N SYSTEMATIC, RECURSIVE CONVOLUTIONAL ENCODER  
AND CORRESPONDING DECODER  
Inventors: Donald B. Eidson, et al.  
Howrey Dkt. No. 01827.0037.CPUS01  
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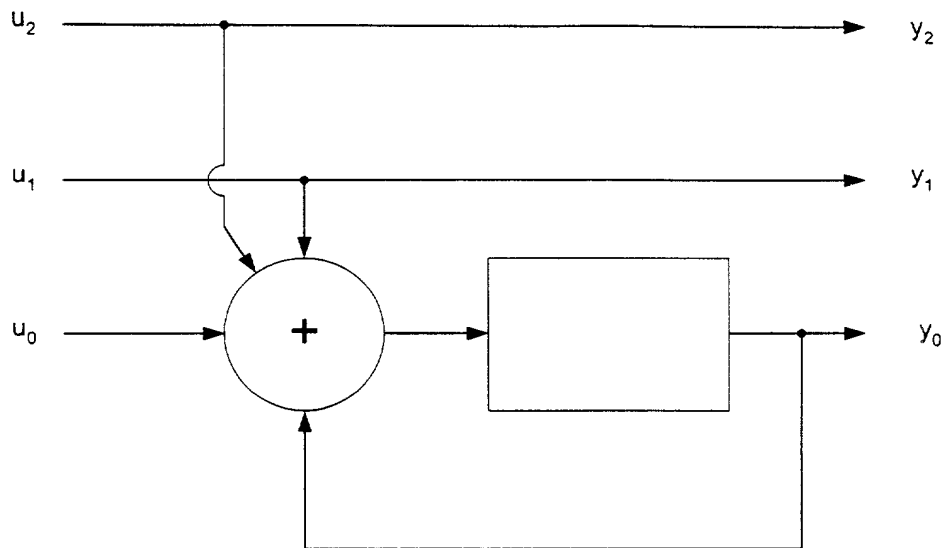


FIGURE 7A

8-PSK SYMBOL INDEXING  
( $y_2, y_1, y_0$ )

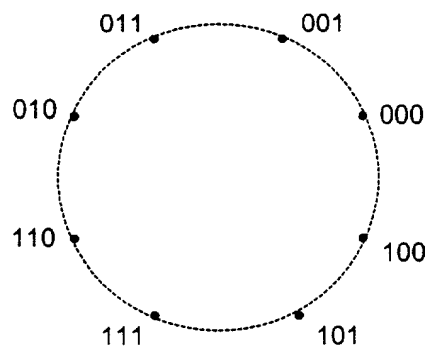


FIGURE 7B

RATE N/N SYSTEMATIC, RECURSIVE CONVOLUTIONAL ENCODER  
AND CORRESPONDING DECODER

Inventors: Donald B. Eidson, et al.  
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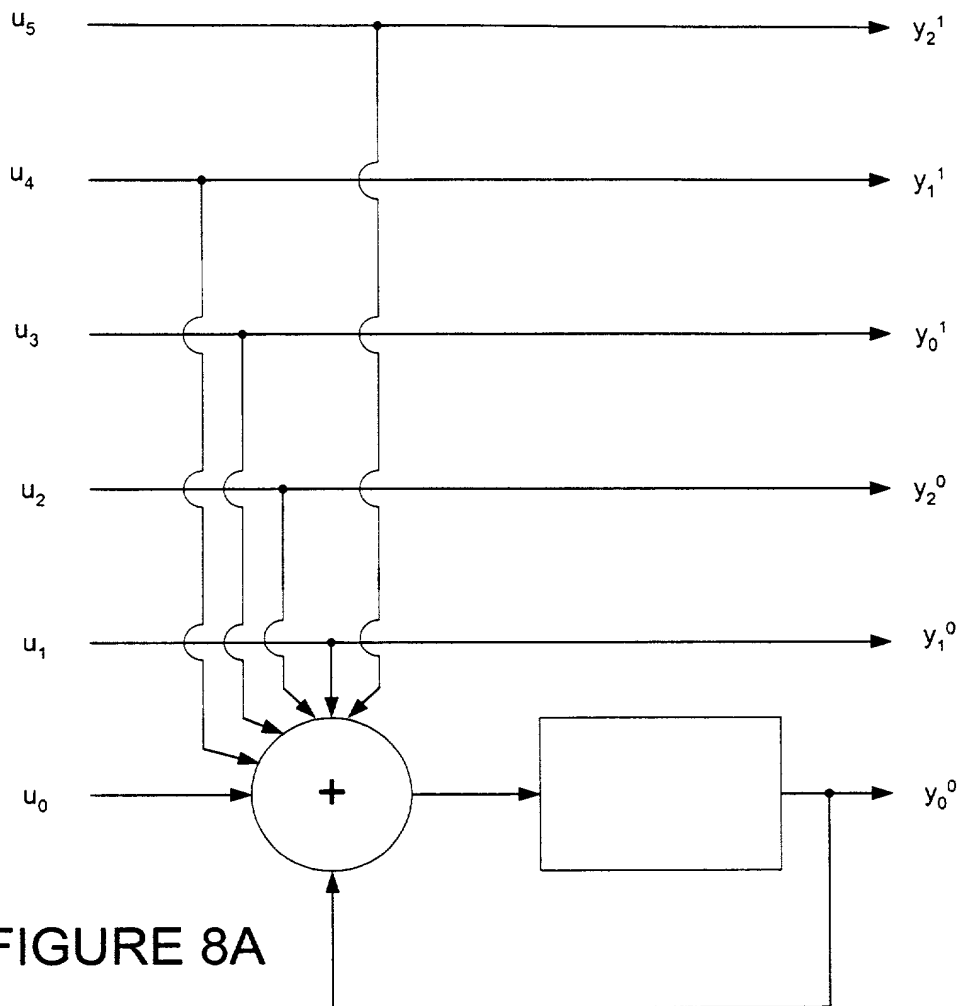


FIGURE 8A

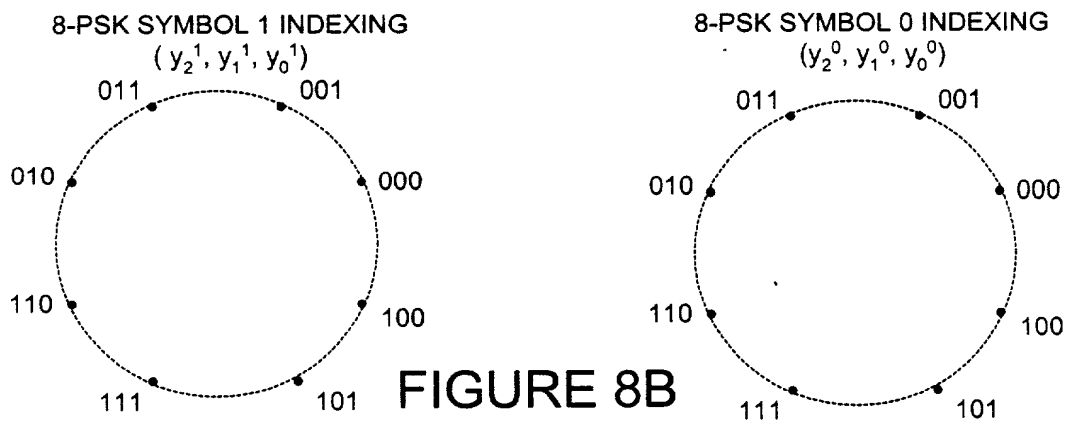


FIGURE 8B



RATE N/N SYSTEMATIC, RECURSIVE CONVOLUTIONAL ENCODER  
AND CORRESPONDING DECODER  
Inventors: Donald B. Eidson, et al.  
Howrey Dkt. No. 01827.0037.CPUS01  
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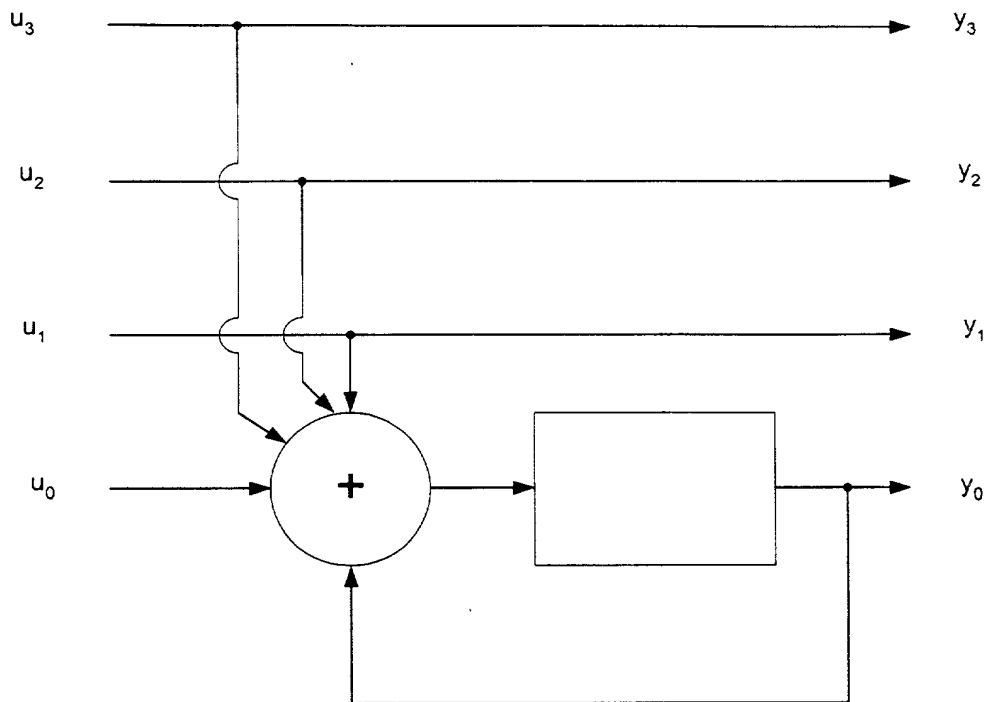


FIGURE 9A

16-QAM symbol indexing  
( $y_3, y_2, y_1, y_0$ )

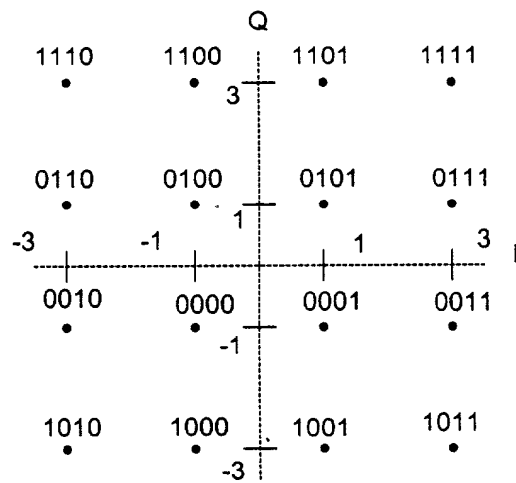


FIGURE 9B

RATE N/N SYSTEMATIC, RECURSIVE CONVOLUTIONAL ENCODER  
AND CORRESPONDING DECODER

Inventors: Donald B. Eidson, et al.  
Howrey Dkt. No. 01827.0037.CPUS01  
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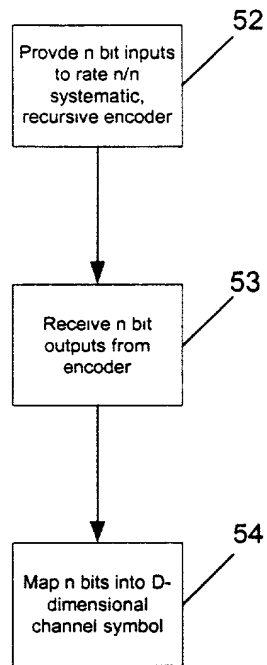


FIGURE 10

# RATE N/N SYSTEMATIC, RECURSIVE CONVOLUTIONAL ENCODER AND CORRESPONDING DECODER

Inventors: Donald B. Eidson, et al.  
Howrey Dkt. No. 01827.0037.CPUS01

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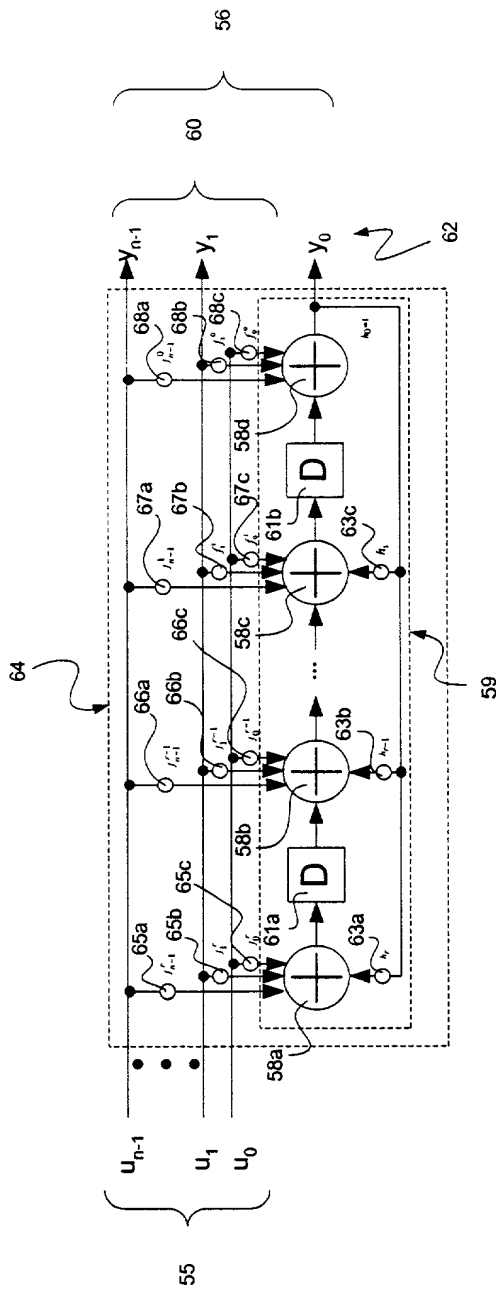
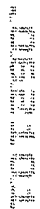


FIGURE 11A

[illegible][illegible][illegible][illegible]

RATE N/N SYSTEMATIC, RECURSIVE CONVOLUTIONAL ENCODER  
AND CORRESPONDING DECODER

Inventors: Donald B. Eidson, et al.  
Howrey Dkt. No. 01827.0037.CPUS01

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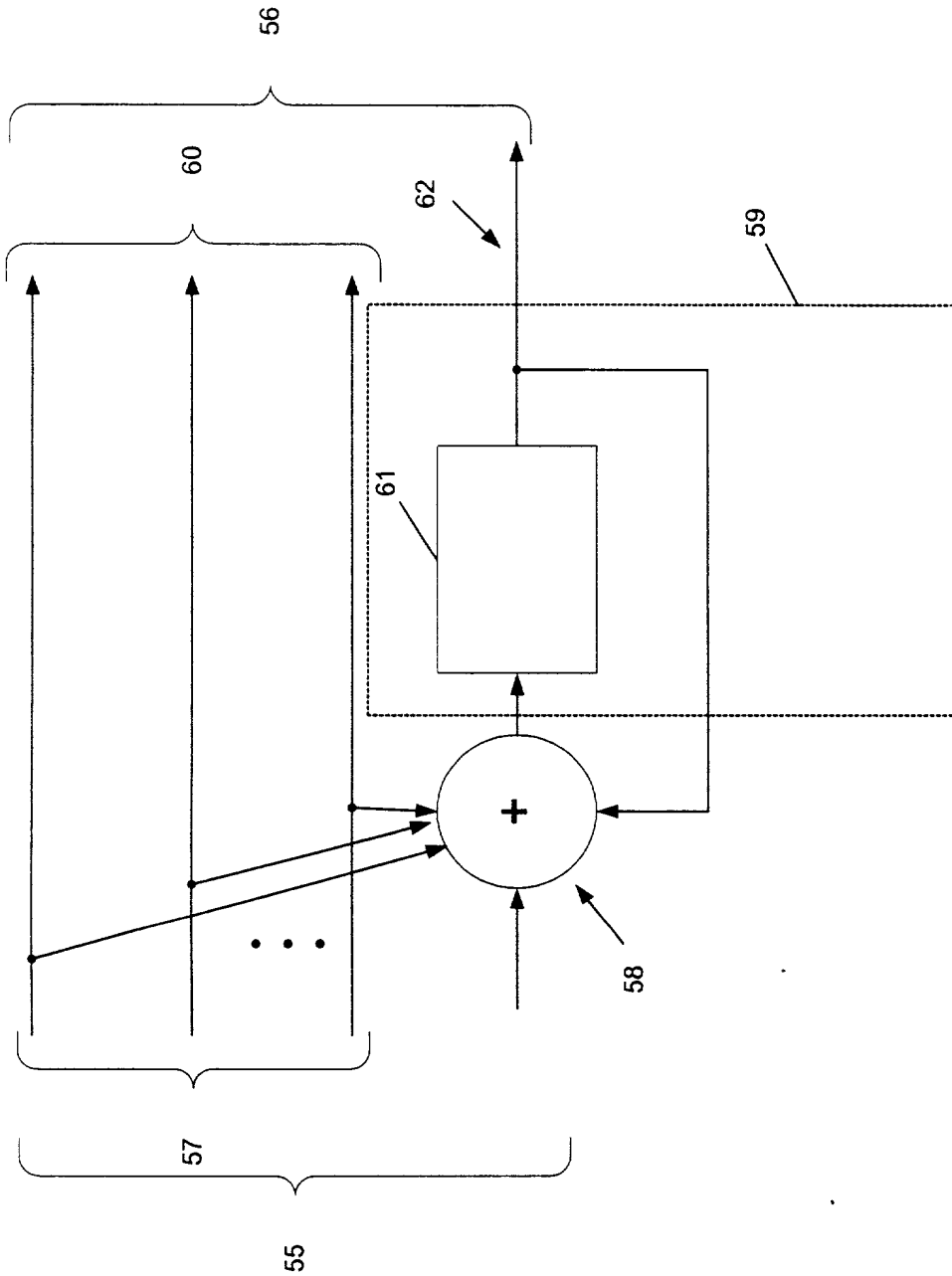


FIGURE 11C

# RATE N/N SYSTEMATIC, RECURSIVE CONVOLUTIONAL ENCODER AND CORRESPONDING DECODER

Inventors: Donald B. Eidson, et al.  
Howrey Dkt. No. 01827.0037.CPUS01

14/24

Rate 3/4 overall 8-PSK SCTCM performance: comparison of rate 3/3, 6/6, and 5/6 inner codes  
15147-bit source data payload per block (BER floor estimated using Union Bound)

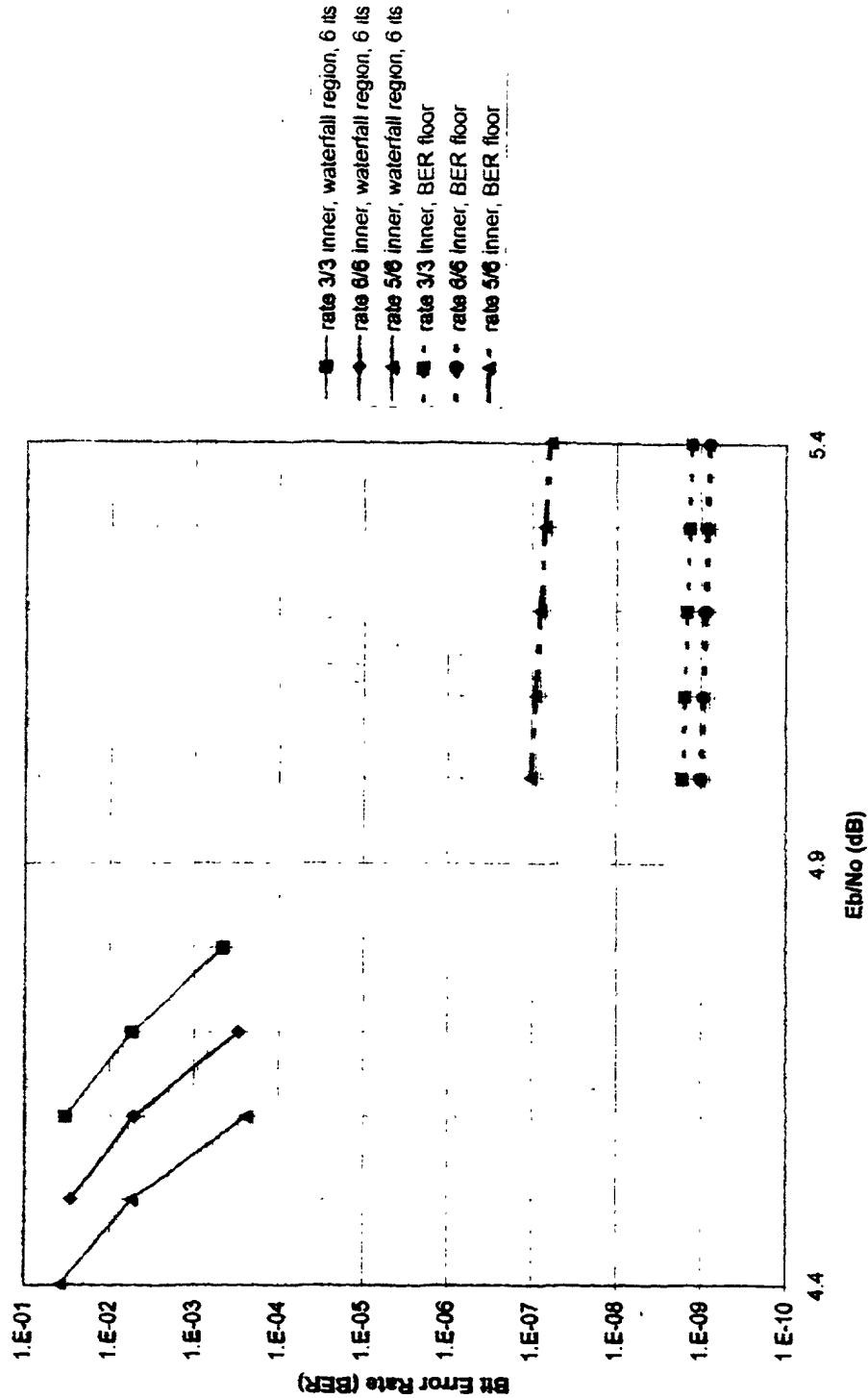


FIGURE 12A

# RATE N/N SYSTEMATIC, RECURSIVE CONVOLUTIONAL ENCODER AND CORRESPONDING DECODER

Inventors: Donald B. Eidson, et al.  
Howrey Dkt. No. 01827.0037.CPUS01

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Rate 5/6 overall 8-PSK SCTCM performance: rate 3/3 inner code vs rate 6/6 inner code  
15125-bit source data payload per block (BER floor estimated using Union Bound)

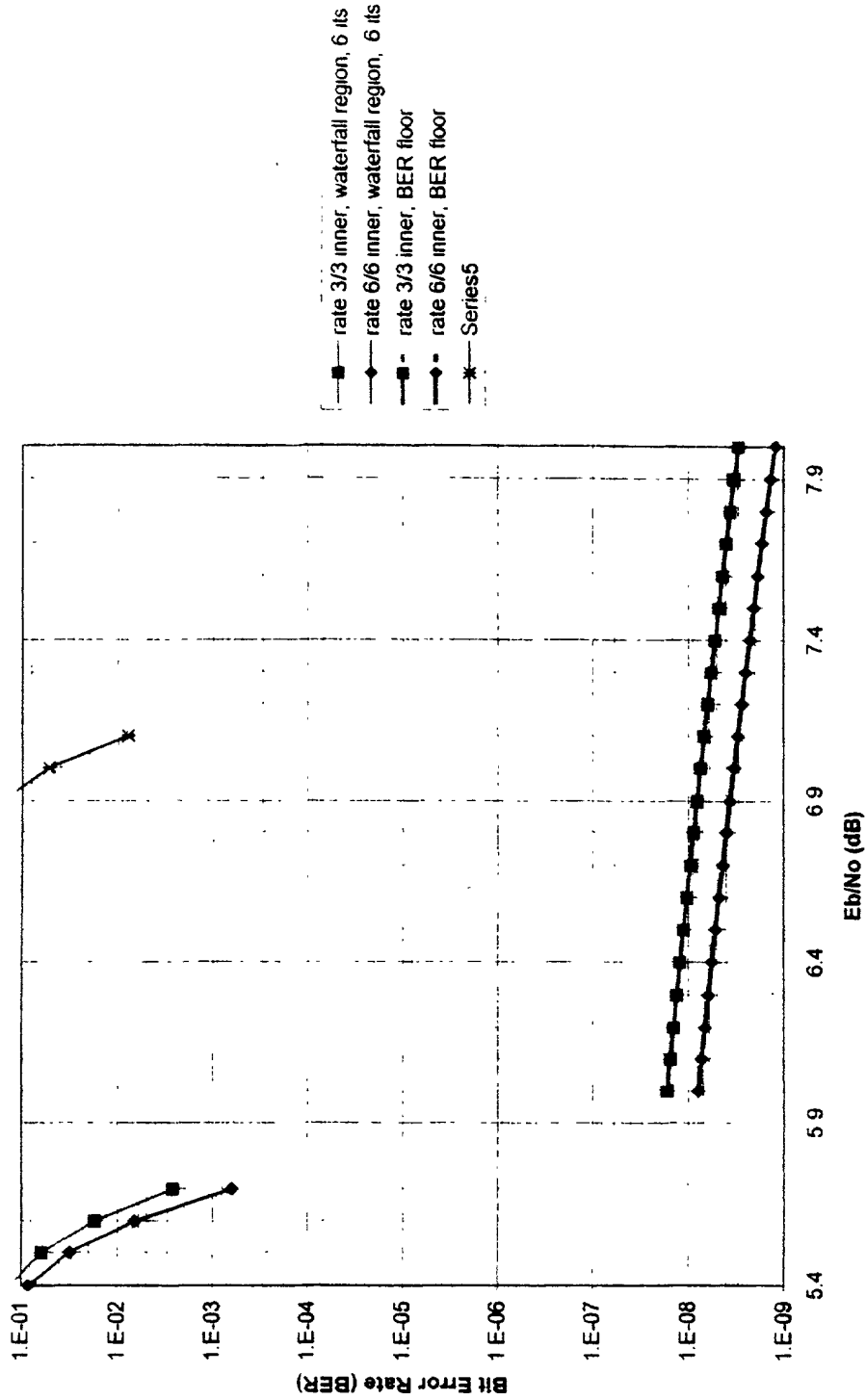


FIGURE 12B

# RATE N/N SYSTEMATIC, RECURSIVE CONVOLUTIONAL ENCODER AND CORRESPONDING DECODER

Inventors: Donald B. Eidson, et al.  
Howrey Dkt. No. 01827.0037.CPUS01

rate 3/3 inner, waterfall region, 6 its  
rate 6/6 inner, waterfall region, 6 its  
rate 3/3 inner, BER floor  
rate 6/6 inner, BER floor

Rate 8/9 overall 8-PSK SCTCM performance: rate 3/3 inner code vs rate 6/6 inner code  
15128-bit source data payload per block (BER floor estimated using Union Bound)

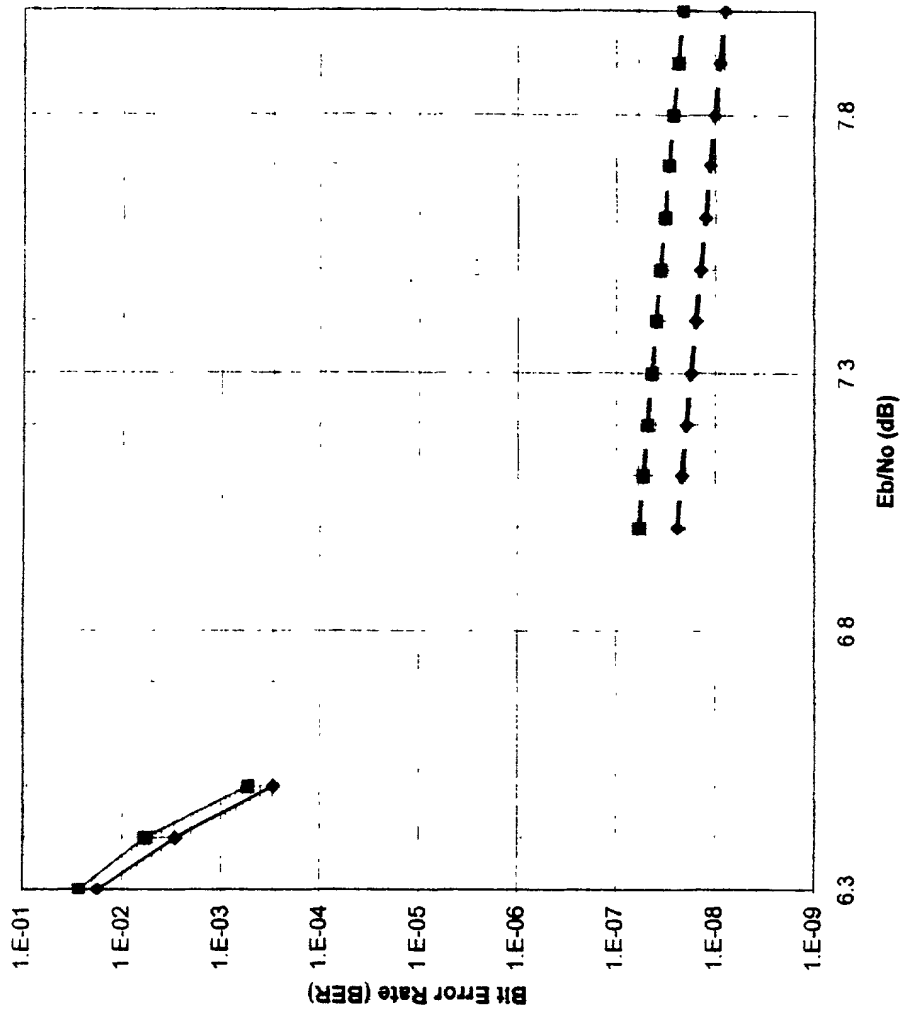


FIGURE 12C



# RATE N/N SYSTEMATIC, RECURSIVE CONVOLUTIONAL ENCODER AND CORRESPONDING DECODER

Inventors: Donald B. Eidson, et al.  
Howrey Dkt. No. 01827.0037.CPUS01

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Rate 4/5 overall QPSK SCCC performance: rate 2/2 inner code vs rate 4/4 inner code  
16384-bit source data payload per block (BER floor estimated using Union Bound)

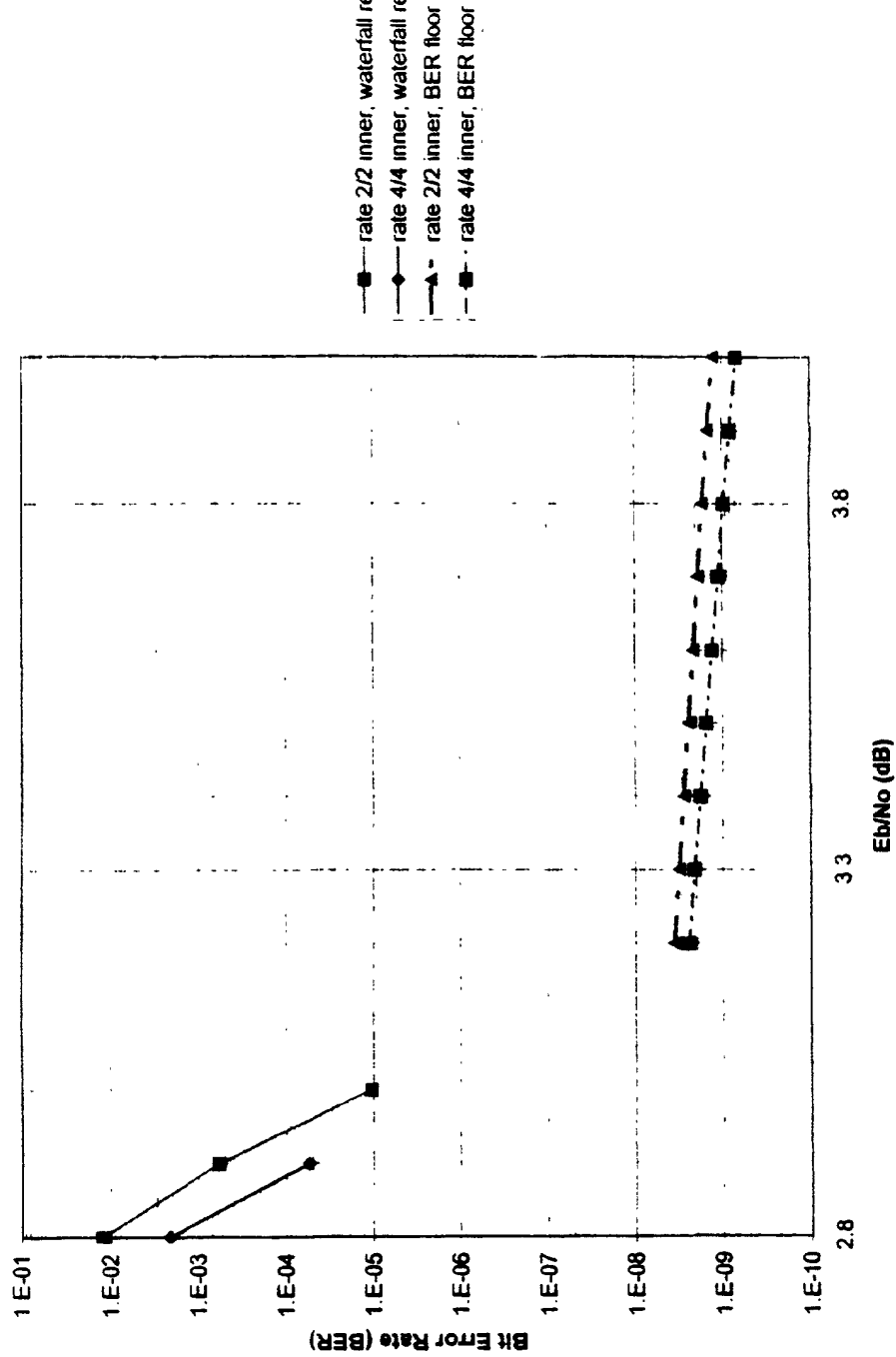


FIGURE 12D

- Baseline rate 5/6 inner
- ◆— JPL's "best" rate 5/6 m=1 inner
- x— rate 3/3 m=1 inner, rate 2/3 outer
- ▲— rate 5/6 m=1 inner, rate 2/3 outer

Simulated (Waterfall) Performance  
Rate 2/3 Overall, 15144 source bits, 5 iterations

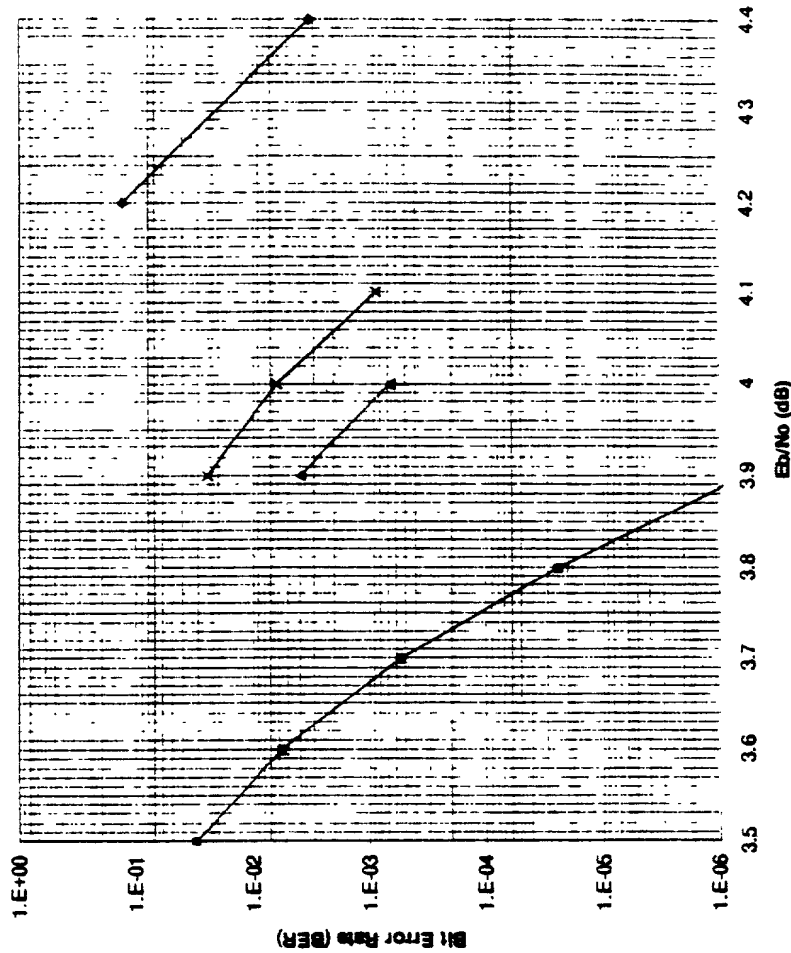


FIGURE 13A

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# Rate 5/6 Overall Waterfall Comparisons

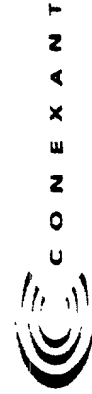
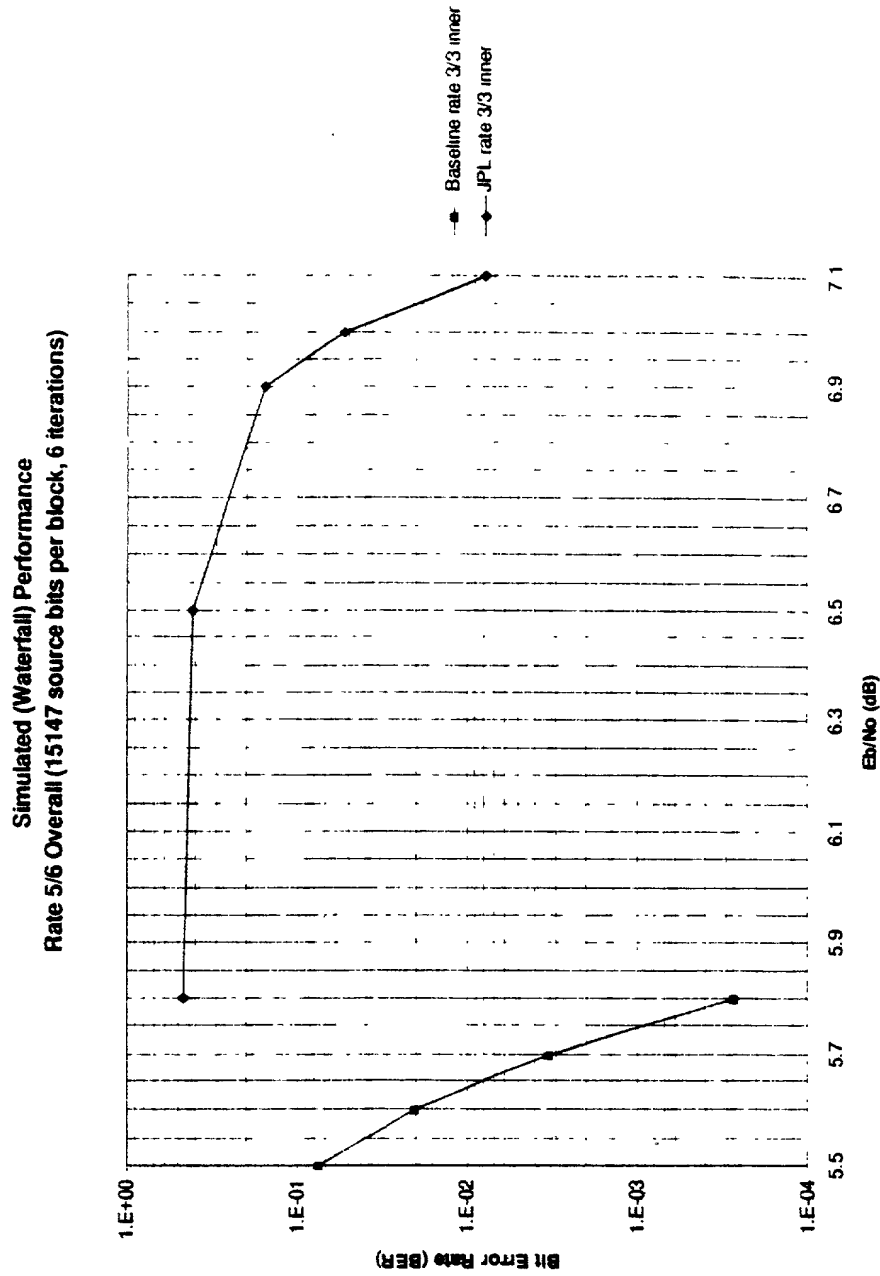


FIGURE 13B

701 250 223 2350

# Rate 3/3 vs Rate 6/6 Codes

RATE N/N SYSTEMATIC, RECURSIVE CONVOLUTIONAL ENCODER  
AND CORRESPONDING DECODER

Inventors: Donald B. Eidson, et al.  
Howrey Dkt. No. 01827.0037.CPUS01

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Rate 5/6 overall 8-PSK SCTCM performance: rate 3/3 inner code vs rate 6/6 inner code

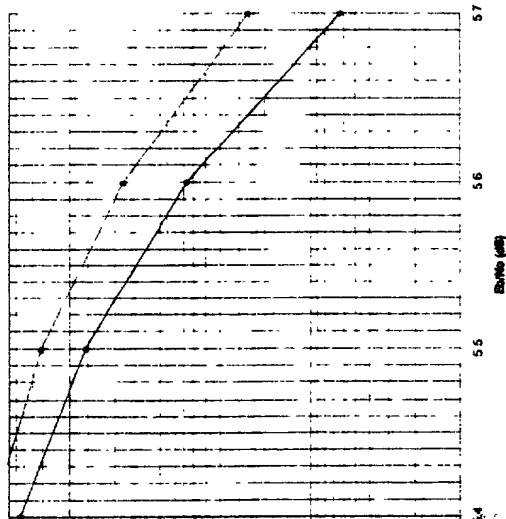


FIGURE 13C

Rate 8/9 overall 8-PSK SCTCM performance: rate 3/3 inner code vs rate 6/6 inner code

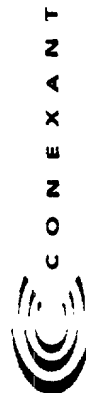
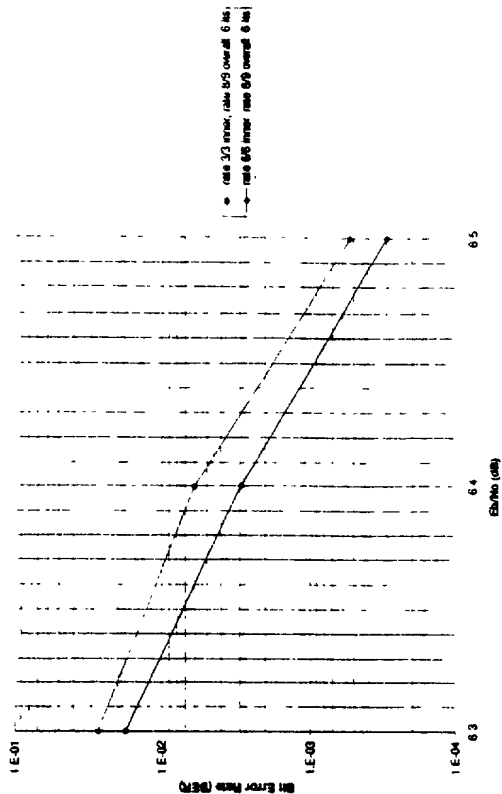


FIGURE 13D

RATE N/N SYSTEMATIC, RECURSIVE CONVOLUTIONAL ENCODER  
AND CORRESPONDING DECODER

Inventors: Donald B. Eidson, et al.  
Howrey Dkt. No. 01827.0037.CPUS01

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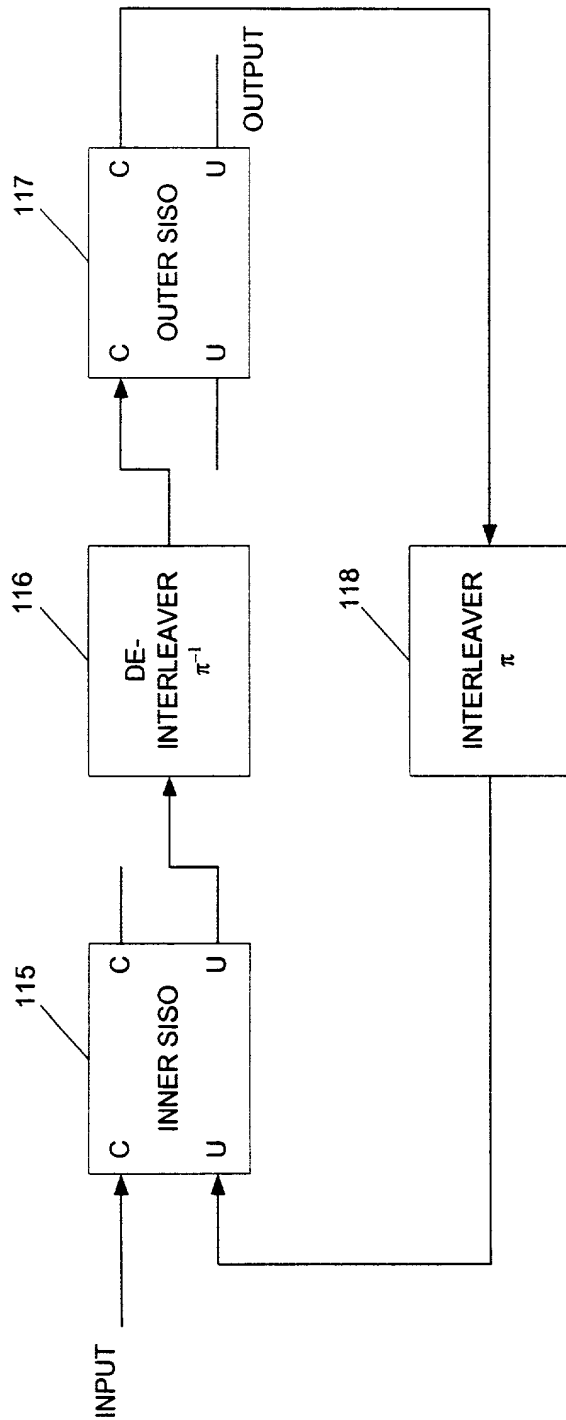


FIGURE 14

RATE N/N SYSTEMATIC, RECURSIVE CONVOLUTIONAL ENCODER  
AND CORRESPONDING DECODER

Inventors: Donald B. Eidson, et al.  
Howrey Dkt. No. 01827.0037.CPUS01

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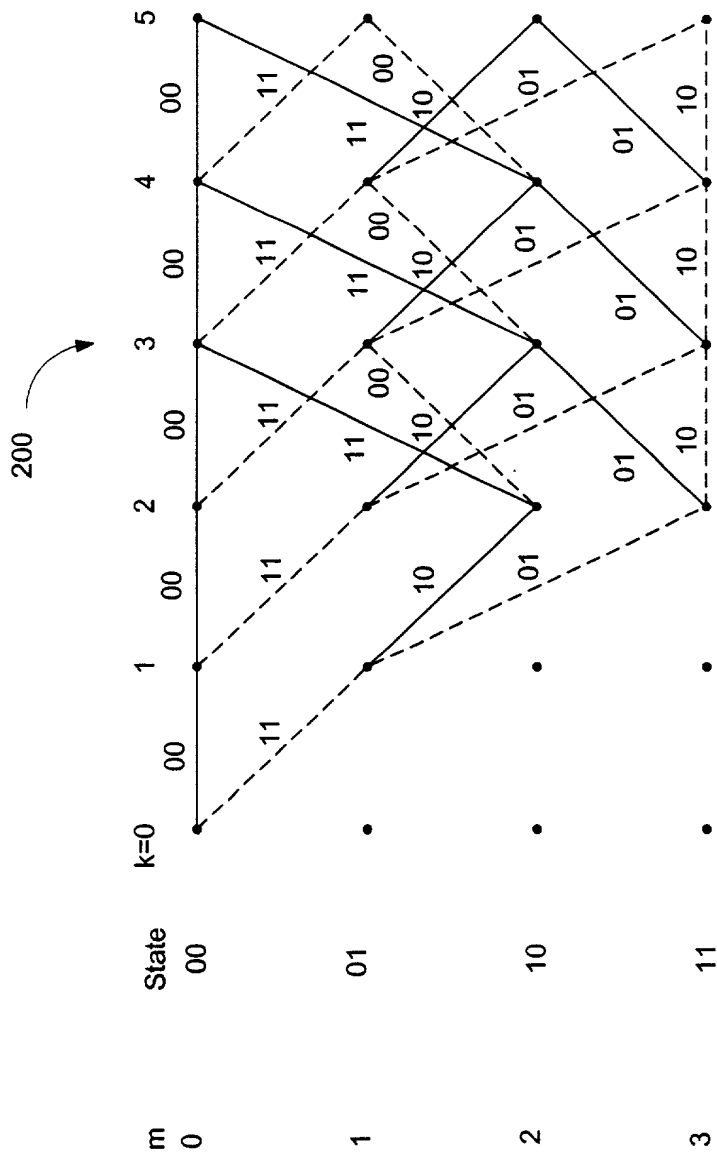


FIGURE 15

RATE N/N SYSTEMATIC, RECURSIVE CONVOLUTIONAL ENCODER  
AND CORRESPONDING DECODER

Inventors: Donald B. Eidson, et al.  
Howrey Dkt. No. 01827.0037.CPUS01

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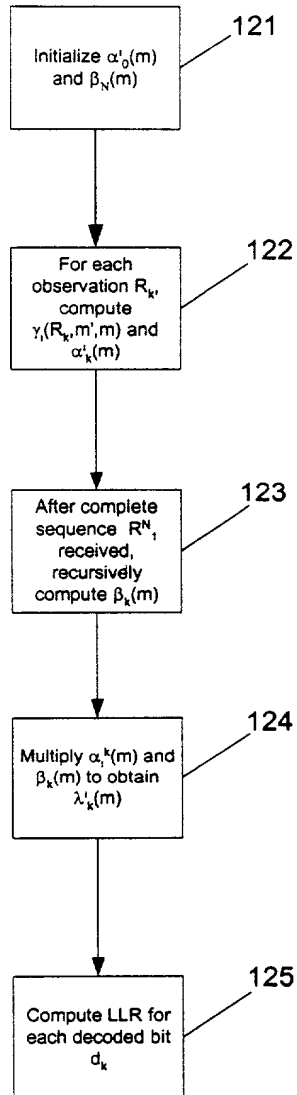


FIGURE 16

RATE N/N SYSTEMATIC, RECURSIVE CONVOLUTIONAL ENCODER  
AND CORRESPONDING DECODER

Inventors: Donald B. Eidson, et al.  
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